INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2004/053262

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3 and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4)
   - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

   Description, Pages

   1-18 as originally filed

   Claims, Numbers

   1-16 as originally filed

   Drawings, Sheets

   1/9-9/9 as originally filed

   ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	4-7, 9, 15, 16
	No:	Claims	1-3, 8, 10-14
Inventive step (IS)	Yes:	Claims	4-7, 15, 16
	No:	Claims	1-3, 8-14
Industrial applicability (IA)	Yes:	Claims	1-16
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V.

1. Reference is made to the following document:

   D1 : TANAKA T, YAMAMOTO S: "Optically Induced Meandering Mie Particles Driven by the Beat of Coupled Guided Modes Produced in a Multimode Waveguide" JAPANESE JOURNAL OF APPLIED PHYSICS 2, [Online] vol. 41, no. 3A, 1 March 2002 (2002-03-01), pages L260-L262, XP002289188 Tokyo, Japan

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.
   Document D1 discloses (the references in parentheses applying to this document):

   A method and a device for placement of polystyrene latex beads on a channelled glass waveguide and laser light radiation is injected onto the end face of the waveguide (page L260, right column). Particles are then grouped on the waveguides core and moved in a straight line along the waveguide channel (page L261, left column, paragraph 2).

   Therefore D1 discloses features a) and b) of independent claim 1 and differs from the subject-matter of claim 1 in the steps of concentration or blocking of particles into one or several stationary clusters, that is feature c) of independent claim 1.

3. Although this step might correspond to a technical reality as stated by the applicant in his letter dated 19.8.2005, a skilled person does not know how to achieve the blocking or concentration of particles as claimed. As acknowledged in the abovementioned letter by the applicant, the technician has to perform the step of producing stationary waves through at least one diffraction grating as described in the description on page 10, and present claims 4 and 15 to arrive at the desired result.

4. Therefore the feature c) of present claim 1 is considered no be not clear as required by Article 6 PCT (see section VIII), and the feature is considered to be not a limiting technical feature of claim 1. Hence, D1 discloses all clear technical features of

present claim 1 and claim 1 is not new (Article 33(2) PCT).

Dependent claims 2, 3, 8-14 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Articles 33(2) and (3) PCT).

5. The combination of the features of independent apparatus claim 15 and dependent claims 4-7, and 16 are neither known from, nor rendered obvious by, the available prior art. The reasons are as follows:

The prior art according to the search report does not disclose a structure of several waveguides being surrounded on both sides by at least two diffraction gratings or a method of producing stationary waves in a waveguide by such a diffraction grating.

Therefore the subject-matter of claims 4-7, and 15,16 is considered to be new and inventive over the cited prior art.

Re Item VIII.

1. Claim 1 does not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The claim attempts to define the subject-matter in terms of the result to be achieved, which merely amounts to a statement of the underlying problem, without providing the technical features necessary for achieving the result of concentration of particles into one or several stationary clusters.

2. Claim 2 is not clear in that it refers to a step b). It is assumed that claim 2 should be formulated as dependent on claim 1.